

Chapter 6 • Triangles

Part 11 · The Escape Challenge

Five gates, each a calculation. Each gives you one digit. Collect all five to unlock the exit code.

□ GATE 1 — The Angle-Sum Gate

In $\triangle ABC \sim \triangle RQP$ with $\angle A = 80^\circ$, $\angle B = 60^\circ$, find $\angle C (= \angle P)$.

Digit: □

□ GATE 2 — The Linear-Pair Gate

$\angle BOC = 125^\circ$ and D, O, B are collinear. Find $\angle DOC$.

Digit: □

□ GATE 3 — The Shadow Gate

A 6 m pole casts a 4 m shadow. A tower casts a 28 m shadow at the same time. Find the height of the tower (m).

Digit: □

□ GATE 4 — The BPT Gate

In $\triangle ABC$, $DE \parallel BC$, $AD = 1.5$ cm, $DB = 3$ cm, $AE = 1$ cm. Find EC (cm).

Digit: □

□ GATE 5 — The Criterion-Count Gate

How many named similarity criteria are given full theorem numbers in this chapter (AAA, SSS, SAS — not counting the AA corollary or the RHS note)?

Digit: □

EXIT CODE: □ □ □ □ □

Every triangle you meet from here on can be checked against another with just a handful of matching parts — AA, SSS, or SAS — and the ratios follow for free. $\triangle \sim \triangle$ $\square$